Case Study: Jones Lang LaSalle's Lippo Plaza Saves 73,200 RMB Annually by Scheduling Boilers to Avoid Peak-Tariff Rates

Building Profile

Lippo Plaza is a 64,000 square-meter mixed-use building (88% office and 12% restaurant) located at 222 Huai Hai Middle Road in Shanghai. Building construction was completed in 1999. Jones Lang LaSalle (www.joneslanglasalle.cn.com) manages the building.

Actions Taken

In May 2004, the Jones Lang LaSalle property management team at Lippo Plaza, led by Chief Engineer Chen Guoqing, reduced boiler electricity consumption by 30% through a simple, low-cost, energy-saving measure. The property management team installed time switches on the sixty-six 6-kW electric hot water boilers used to provide domestic hot water to tenant washrooms. The time switches gave building managers the ability to automatically turn the hot water boilers on and off up to five times per day, which enabled them to better manage energy consumption while maintaining hot water service to tenants.

The property management team was able to realize significant cost and demand savings that stem from three contributing factors. First, by scheduling all boiler operation during the non-peak tariff rate except for one hour in the morning, facility managers reduced electricity consumption during peak hours when the rate is 36.5% higher. Second, the adjusted operation schedule reduced the building's peak electricity demand because the boilers generally no longer operate at peak. Third, the boilers are on for only 5 hours on weekdays instead of the 11 hours previously.

Results

After implementing the measure, Jones Lang LaSalle measured that the project reduces electricity consumption by 99,000 kWh and saves approximately 73,200 RMB (or US$9,150) annually. Cost savings come from three project benefits:

1. Monthly electricity consumption is reduced by 8,250 kWh.
2. Energy costs are reduced by shifting electricity consumption from the peak tariff of ¥0.957/kWh to the mid-tariff of ¥0.631/kWh.
3. All units can be switched off during the building's peak, reducing demand charges.

The total cost to purchase the 66 hot water boiler time switches was 8,580 RMB (or about US$1,060).

A Quick Glance at the Cost and Benefit

Initial investment = 8,580 RMB for 66 hot water boiler time switches

Estimated annual energy saving = 99,000 kWh

Estimated annual cost saving = 73,200 RMB

Payback period = 1.5 months

Recommendations from the Chief Engineer

For the Lippo Plaza project, Chief Engineer Chen drafted the implementation plan, conducted cost-benefit and payback analysis for the measure, and successfully communicated the energy savings and demand reduction to top management. After time switches were installed on only a few floors, Mr. Chen used sub-metering to compare the energy consumption of the time-switched boilers to the consumption of the boilers without switches.

Based on this experience, Mr. Chen recommends that other property managers and operators carefully plan energy-efficiency projects and develop a cost-benefit and payback analysis to convince top management to approve energy saving measures. This strategy allows for quicker and more effective decision-making and can help building managers achieve more rapid results.

Contact Information

To find out more about Jones Lang LaSalle in Shanghai, go to (www.joneslanglasalle.com.cn) or contact Mr. Chance Hu at, (86-21) 6393 3333 or chance.hu@ap.joneslanglasalle.com

For more information on the eeBuildings program, to find out about upcoming trainings and events, or for general information on how to reduce building energy consumption using simple, low-cost operational measures, go to www.epa.gov/eeBuildings or write to eeBuildings@epa.gov.

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